MultiSync 2A

User's Manual

NEC

BAYERISCHES STAATSMINISTERIUM
FÜR ARBEIT UND SOZIALORDNUNG

Zulassungsschein Nr. By 448/89/Rö
nach § 10 Röntgenverordnung (RöV)
(in der Fassung mit 3. Ergänzung)

Gemäß § 8 Abs. 2 RöV wird die Bauart des nachstehend beschriebenen Störstrahlers zugelassen:

Gegenstand:	Farbmonitor
Firmenbezeichnung:	NEC Typen: JC-1403 HMED JC-1403 HMN
Bildröhren (wahlweise):	NEC, Type M 34 JUP 23xx183 NEC, Type M 34 JUP 23xx NEC, Type M 34 JUP 23xx215 NEC, Type M 34 JUP 23xx215 (T4) Philips, Type M 34 ECL 10x46 Philips, Type M 34 ECL 12x46
Betriebsbedingungen:	Hochspannung: max. 27,0 kV Strahlstrom: 0,4 mA
PTB-Prüfungsschein:	Nr. 6.22 - S 751 mit 1. bis 4. Ergänzung
Zulassungsinhaber:	NEC Deutschland GmbH Klausenburger Str. 4 D 8000 München 80

Befristung:
Die Zulassung gilt bis zum 23.02.1999 (§ 8 Abs. 3 Satz 1 RöV). Die in diesem Zulassungsschein genannten Geräte, die vor Ablauf der Frist in Verkehr gebracht worden sind, dürfen nach Maßgabe des § 8 Abs. 3 RöV auch nach Ablauf dieser Frist weiterhin betrieben werden.

Wesentliche Merkmale für den Strahlenschutz sind:
- die Bauart der Bildröhre und
- die der Hochspannungserzeugung und -stabilisierung dienenden Baugruppen des Chassis.

Auflagen:
Die Geräte müssen vom Zulassungsinhaber einer Stückprüfung daraufhin unterzogen worden sein, ob sie bezüglich der für den Strahlenschutz wesentlichen Merkmale der Bauartzulassung entsprechen.

Kennzeichen und Angaben:
Die Geräte tragen auf der Rückwand das Kennzeichen

By 448/89/Rö

und einen Hinweis mit mindestens folgendem Inhalt:

"Die in diesem Gerät entstehende Röntgenstrahlung ist ausreichend abgeschirmt.
Beschleunigungsspannung maximal 27,0 kV"

München, den 15.12.1989
II5/3443-1/73/89

I.A.

Reil

L.S.

Dipl.-Ing. Reil
Ministerialrat

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RÖNTGENSTRAHLUNG

Unsachgemäße Eingriffe, insbesondere Verändern der Hochspannung oder Einbau eines anderen Bildröhrentyps, können dazu führen, daß Röntgenstrahlung in erheblicher Stärke auftritt. So veränderte Geräte entsprechen nicht mehr dieser Zulassung und dürfen nicht betrieben werden.

BESCHEINIGUNG DES IMPORTEURS

Hiermit wird bescheinigt, daß der Monitor JC-1403HMED und JC-1403HMN in Übereinstimmung mit den Bestimmungen der VFG. 1046/1984 funkentstört ist.
Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

English

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CHAPTER 1. INTRODUCTION

1.1 GENERAL INFORMATION

The MultiSync 2A, an Intelligent Monitor from NEC, is a high resolution color monitor that automatically adjusts or senses multiple scanning frequencies generated from graphics adapters. The MultiSync 2A accepts horizontal scan frequencies of 31.5kHz and 35kHz and vertical scan frequencies of 56Hz, 60Hz and 70Hz.

As you can see, "design" was the top priority with the MultiSync 2A. With the intelligence to support the hardware timings of IBM's VGA and MCGA, the MultiSync 2A was also designed to be compatible with many non-IBM graphics boards supporting the Super VGA resolution of 800 x 600.

The MultiSync 2A will operate with IBM PC/XT/AT/386 compatibles and IBM's Personal System/2 (PS/2) series computers.

1.2 FEATURES OF THE MULTISYNC 2A

— The MultiSync 2A automatically scans horizontal frequencies of both 31.5kHz and 35kHz, among the vertical refresh rates of 56Hz, 60Hz and 70Hz.
— The MultiSync 2A has a maximum horizontal resolution of 800 dots by a maximum vertical resolution of 600 lines.
— By accepting ANALOG signal inputs, the MultiSync 2A can display an unlimited palette of colors. The number of colors displayed depends on the graphics board and software being used.
— The MultiSync 2A has a 14" diagonal, non-glare CRT, and yeilds a 13" viewing area.
— A captive signal cable is included with a 15 pin connector that's wired for IBM's VGA configuration. Refer to Appendix A for pin assignments.
— User controls are very accessible, but their operation may seem unfamiliar at first. Please see the section regarding user controls to learn about them.

1.3 CAUTIONS WHEN USING THE MULTISYNC 2A

When setting up and using your MultiSync 2A, pay special attention to the following:

— To eliminate eye fatigue, do not use your MultiSync 2A against a bright background or where sunlight or other light sources will shine directly on the monitor.
— Your MultiSync 2A should be placed just below eye level for optimum viewing.
— Allow adequate ventilation around the monitor so that heat from the monitor can properly dissipate.
— Neither the monitor itself, nor any other heavy object, should rest on the power cord. Damage to a power cord can cause fire or electrical shock.
— Keep the monitor away from high capacity transformers, electric motors and other strong magnetic fields.
— Your MultiSync 2A should not be used in damp, dusty or dirty areas.
— Handle your MultiSync 2A with care when transporting.

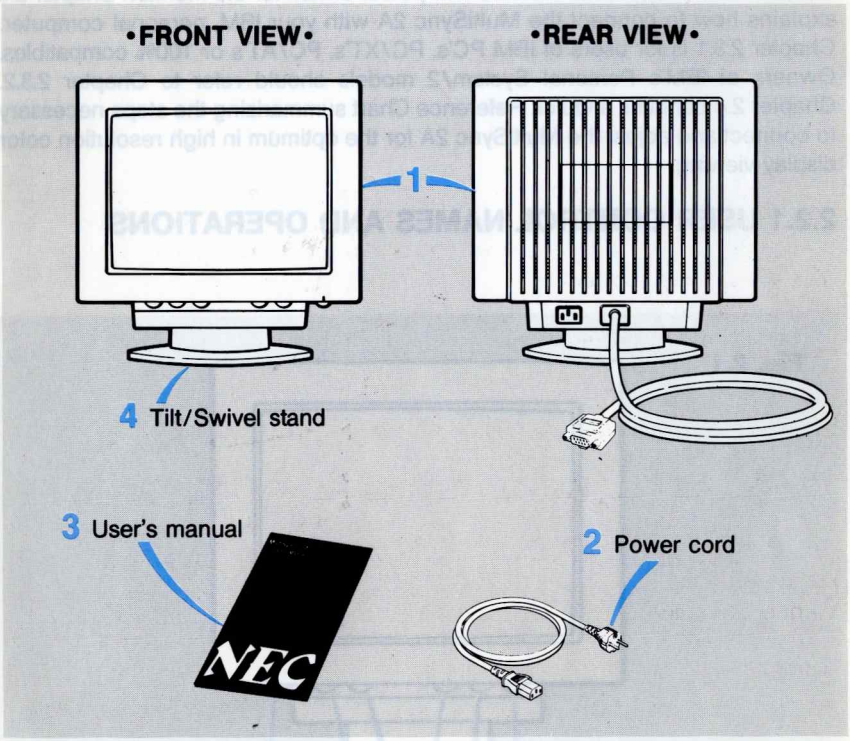
1.4 RECOMMENDATION FOR ERGONOMICS

— For ergonomical reasons, we recommend using a vertical frequency of 70Hz.
— For ergonomical reasons we recommend not to use the primary color blue on a dark background (difficult to recognize, eye-fatiguing due to insufficient contrast).
— We recommend to adjust the brightness in a way that the background raster disappears.

CHAPTER 2. USING THE MULTISYNC 2A

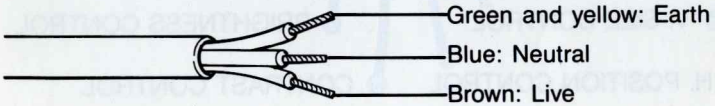
2.1 GETTING ACQUAINTED WITH YOUR MULTISYNC 2A COLOR MONITOR

Refer to the diagram below to be sure that your MultiSync 2A package includes all of the items in this picture. Save the original box and packing materials in case you have to ship or transport your MultiSync 2A.



1. MultiSync 2A (JC-1403HME/EE/R/N/ED Color Monitor)
2. Power cord

In case of JC-1403HMEE, the end of power cord is as follows.



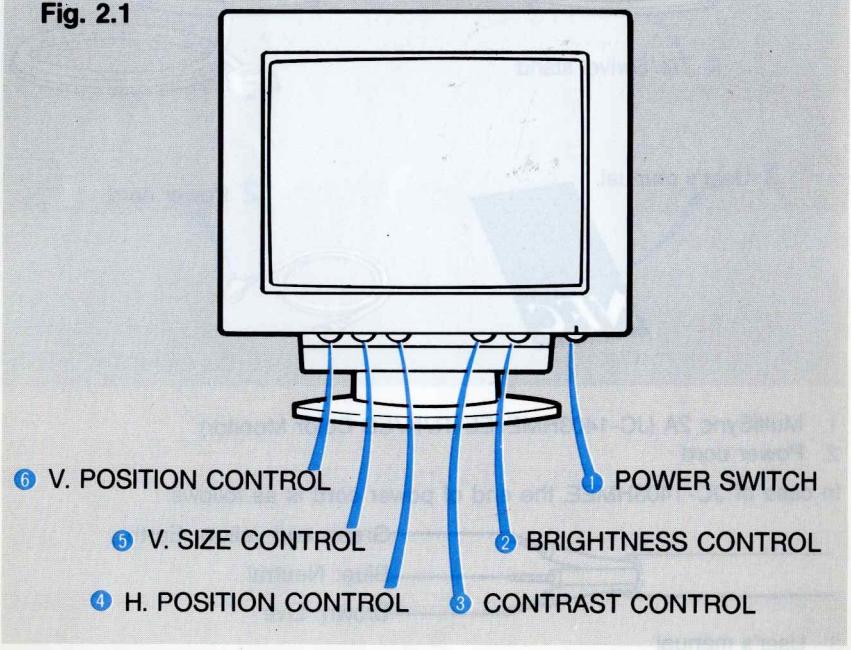
3. User's manual
4. Tilt/Swivel stand: Enables you to position the MultiSync 2A at the best angle and tilt for maximum viewing comfort.

2.2 ADJUSTING THE MULTISYNC 2A'S CONTROLS

Before connecting the MultiSync 2A with IBM personal computers or compatibles or the IBM Personal System/2, take time to familiarize yourself with the controls that you can adjust for the optimum display from the MultiSync 2A. Chapter 2.2.1 outlines the controls and power switch for the monitor. Chapter 2.3 explains how to connect the MultiSync 2A with your IBM, personal computer. Chapter 2.3.1 is for users of IBM PC's, PC/XT's, PC/AT's or 100% compatibles. Owners of IBM's Personal System/2 models should refer to Chapter 2.3.2. Chapter 2.4 contains a Quick Reference Chart summarizing the steps necessary to connect and adjust the MultiSync 2A for the optimum in high resolution color display viewing.

2.2.1 USER CONTROL NAMES AND OPERATIONS

Fig. 2.1



1 ON/OFF (Power Switch)

Used to turn the power ON or OFF. When the power is ON, the LED power indicator, located on the front of the monitor, is lit.

2 BRIGHT (Brightness Control)

Used to adjust the brightness of the background.

3 CONT (Contrast Control)

Used to adjust the sharpness of the characters.

4 H.POSI (Horizontal Position Control)

Adjust this knob for proper horizontal display position. Turn clockwise to reposition display to the right, counterclockwise to reposition to the left.

5 V.SIZE (Vertical Display Size Control)

Adjust this knob for the proper vertical size of the display. Turn clockwise for larger display, counterclockwise for a smaller display.

6 V.POSI (Vertical Position Control)

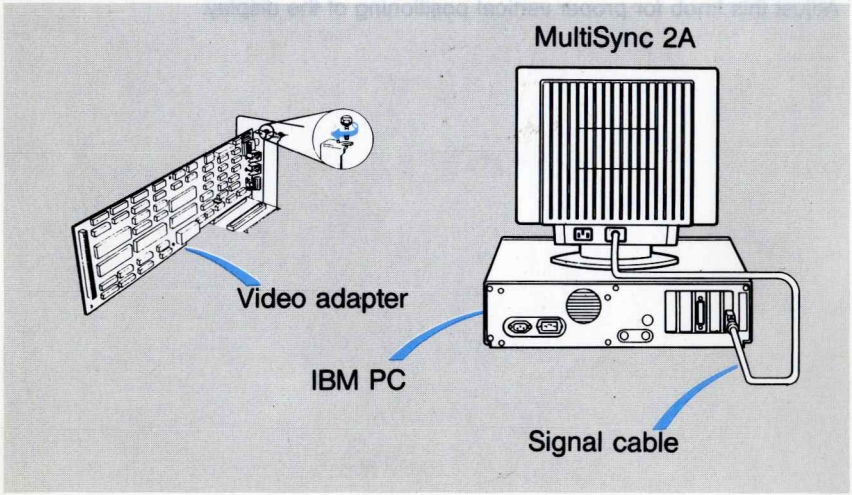
Adjust this knob for proper vertical positioning of the display.

2.3 MAKING THE RIGHT CONNECTIONS

2.3.1 WITH THE IBM PC, PC/XT AND PC/AT

The MultiSync 2A monitor can be used with IBM personal computers in the following configurations.
For an IBM PC, PC/XT or PC/AT equipped with either a non-IBM VGA board or super VGA board, follow these steps:

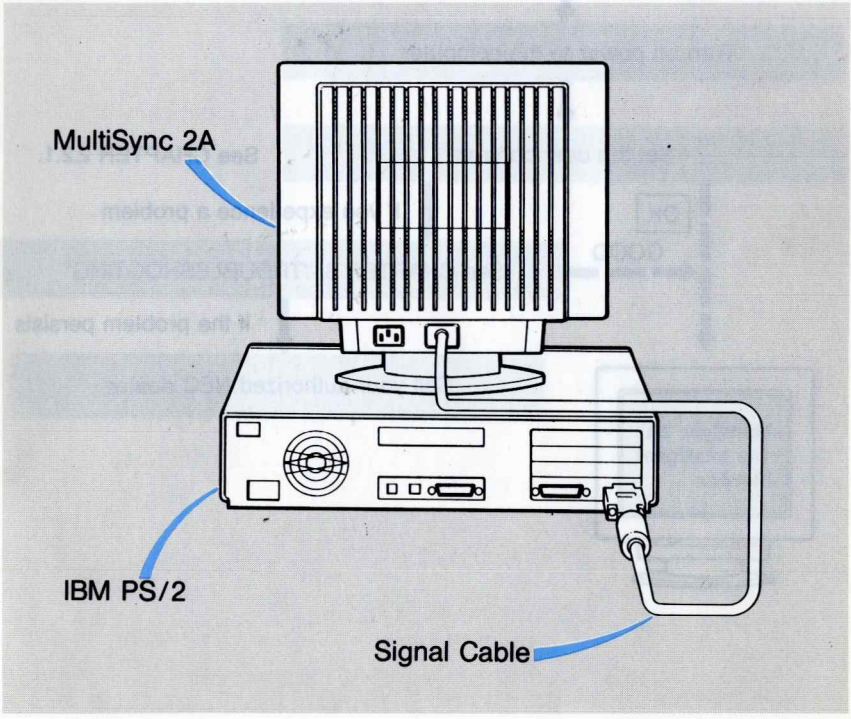
1. Be sure the POWER to the MultiSync 2A and the IBM PC, PC/XT or PC/AT is turned OFF.
2. Install the video adapter according to the instructions accompanying it. If the video adapter gives you the option of installing for a multiple frequency monitor, set the dip switches on the adapter accordingly.
3. Connect the end of the MultiSync 2A signal cable to the connector marked "VIDEO OUT" on the rear of the video adapter.
4. Connect one end of the power cable to the MultiSync 2A and the other end to a power outlet.



2.3.2 WITH THE IBM PS/2

The MultiSync 2A monitor can be used with an IBM Personal System/2 in the following configuration.
For an IBM PS/2 equipped with either the IBM Multicolor Graphics Array (MCGA) or the IBM Video Graphics Array (VGA), follow these steps:

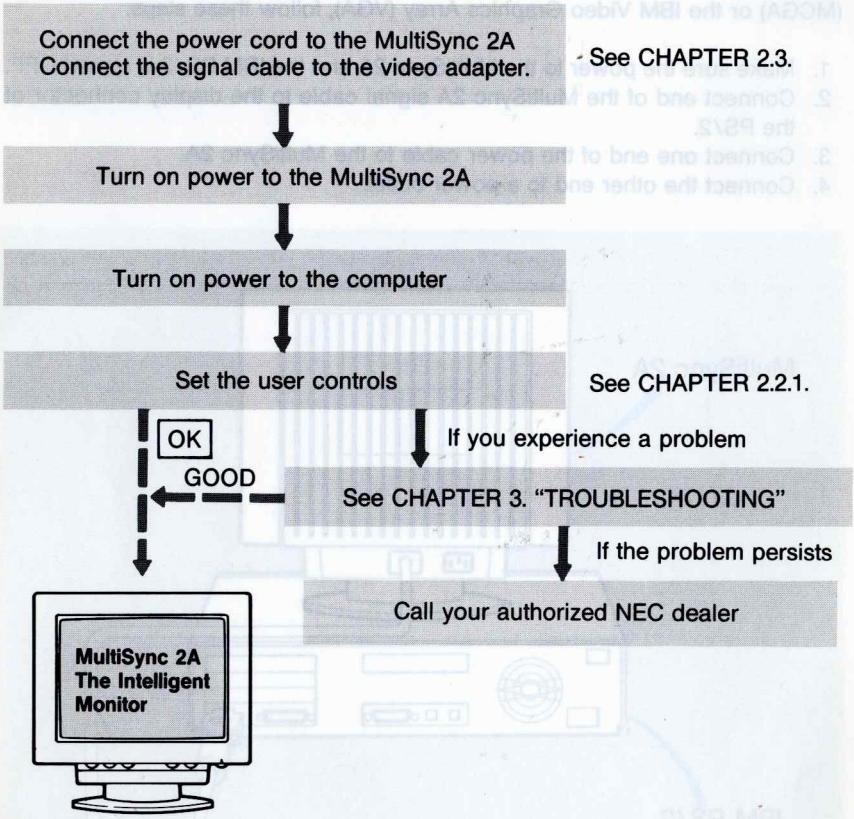
1. Make sure the power to the MultiSync 2A and the IBM PS/2 is turned OFF.
2. Connect end of the MultiSync 2A signal cable to the display connector of the PS/2.
3. Connect one end of the power cable to the MultiSync 2A.
4. Connect the other end to a power outlet.



NOTE: The MultiSync 2A is not designed to function with IBM's high resolution 8514/A Display Adapter.

2.4 QUICK OPERATION CHART

To summarize the steps in connecting your computer and video adapter with the MultiSync 2A and in setting the necessary controls, refer to the chart below.


Connect the power cord to the MultiSync 2A
Connect the signal cable to the video adapter.
See CHAPTER 2.3.
Turn on power to the MultiSync 2A
Turn on power to the computer
Set the user controls
See CHAPTER 2.2.1.
OK
GOOD
If you experience a problem
See CHAPTER 3. "TROUBLESHOOTING"
If the problem persists
Call your authorized NEC dealer
MultiSync 2A
The Intelligent
Monitor

CHAPTER 3. TROUBLE SHOOTING

Before calling your authorized NEC dealer or an authorized service center, please check to see that the following items are properly connected or set:

PROBLEM	CHECK THESE ITEMS
No picture/abnormal picture	ON/OFF switch, signal cable Computer power switch
Display locks or center shifts	V. POSI, H. POSI
Display too large or too small	V. SIZE

If connecting to a non-IBM compatible video adapter, make sure the signal timing and pin assignments meet the specifications outlined in APPENDIX A or B.

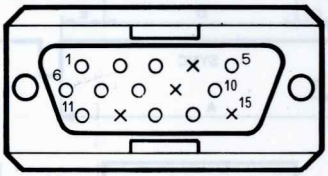
CHAPTER 4. SPECIFICATIONS

Picture Tube	13 Visual inches diagonal 90 degree deflection, 0.31mm Trio dot pitch Dot type black matrix, Non-long persistence phosphor, Dark bulb, Direct etch
Input Signal	Video: ANALOG 0.7Vp-p/75Ω Positive Sync.: Separate sync. TTL Level Horizontal sync. Positive/Negative Vertical sync. Positive/Negative
Display Colors	Analog Input: Unlimited colors
Synchronization	Horizontal: 31.5kHz and 35kHz (Automatically) Vertical: 56Hz/60Hz/70Hz (Automatically), Non-interlace
Resolution	Horizontal: 800 dots Vertical: 600 lines
Video Band Width	38MHz
Active Display Area	Horizontal: 240mm (Active display area is changed by signal timing.) Vertical: 180mm
Misconvergence	Less than 0.6mm
Power Supply	AC 220—240V 50/60Hz
Power Consumption	65W
Dimensions	355(W) x 363(H) x 406(D)mm
Weight	12.3kg (JC-1403HMED/N: 13.5kg)
Environmental Considerations	Operating Temperature 0°C to +40°C Humidity 30% to 80% Storage Temperature −20°C to +60°C Humidity 10% to 90%

Technical specifications are subject to change without notice.

APPENDIX A PIN ASSIGNMENTS

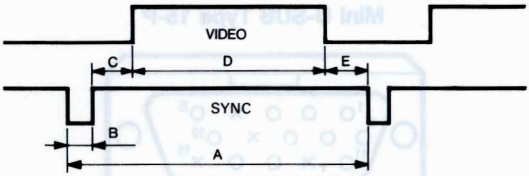
Mini D-SUB Type 15-P



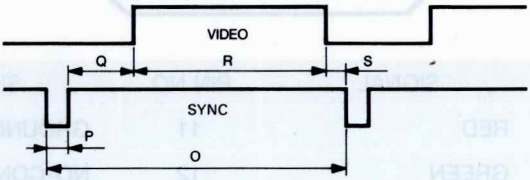
PIN NO.	SIGNAL	PIN NO.	SIGNAL
1	RED	11	GROUND
2	GREEN	12	NO-CONNECTION
3	BLUE	13	H. SYNC
4	NO-CONNECTION	14	V. SYNC
5	GROUND	15	NO-CONNECTION
6	GROUND		
7	GROUND		
8	GROUND		
9	NO-CONNECTION		
10	GROUND		

APPENDIX B TIMING CHARTS

HORIZONTAL



VERTICAL



Horizontal Freq	31.5kHz			35.2kHz
Vertical Lines	350	400	480	600
Sync. Polarity	POS	NEG	NEG	POS
A μs	31.78	31.78	31.78	28.44
B μs	3.81	3.81	3.81	2.00
C μs	1.91	1.91	1.91	3.56
D μs	25.42	25.42	25.42	22.22
E μs	0.64	0.64	0.64	0.67
Sync. Polarity	NEG	POS	NEG	POS
O ms	14.27	14.27	16.68	17.78
P ms	0.06	0.06	0.06	0.06
Q ms	1.91	1.11	1.05	0.63
R ms	11.12	12.71	15.25	17.07
S ms	1.18	0.38	0.32	0.03

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